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File  73:EMBASE 1974-2000/Jan W1
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?ds

Set     Items   Description
S1         78   (CHEMICAL (5N) SENSOR? ?) AND ARRAY? ?
S2      42933   MICROSPHERE? ? OR MICROBEAD? ? OR MICROPARTICLE? ?
S3        351   MICRO()SPHERE? ? OR MICRO()BEAD? ? OR MICRO()PARTICLE? ?
S4     126409   DYE? ?
S5     368331   ENCOD?
S6    3286278   BIOACTIVE OR NUCLEIC OR PROTEIN? ?
S7      36970   (FLUORESCEN? OR SOLVATOCHROM?) (3N) DYE??
S8        434   NILE()RED
S9      26081   ((FIBER OR FIBRE) ()OPTIC? ?) OR FIBEROPTIC? ? OR FIBREOPT-
             IC? ?
S10         2   S1 AND (S2 OR S3)
S11         1   RD S10 (unique items)
S12         3   S1 AND S4
S13         2   RD S12 (unique items)
S14      2657   SENSOR? ? AND ARRAY? ?
S15        10   S14 AND (S2 OR S3)
S16         6   RD S15 (unique items)
S17        72   S14 AND S4
S18        50   RD S17 (unique items)
S19        17   S18 AND (S6-S8)
S20         4   S18 AND S5
S21         4   RD S20 (unique items)
S22         7   S18 AND S9
S23        27   S11 OR S13 OR S16 OR S19 OR S21 OR S22
S24         4   S14 AND OPTICAL () RESPONSE? ?
S25         3   RD S24 (unique items)
S26        29   S23 OR S25
?t 26/7/all

 26/7/1     (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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10159243   99456776
 Role of myosin VI in the differentiation of cochlear hair cells.
  Self T; Sobe T; Copeland NG; Jenkins NA; Avraham KB; Steel KP
  MRC  Institute of Hearing Research, University Park, Nottingham, NG7 2RD,
United Kingdom.
  Dev Biol (UNITED STATES)   Oct 15 1999,  214 (2) p331-41,  ISSN 0012-1606
Journal Code: E7T
  Languages: ENGLISH
  Document type: JOURNAL ARTICLE
  The  mouse  mutant Snell's waltzer (sv) has an intragenic deletion of the
Myo6 gene, which encodes  the unconventional myosin molecule myosin VI (K.
B.  Avraham et al., 1995, Nat. Genet. 11, 369-375). Snell's waltzer mutants
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exhibit behavioural abnormalities suggestive of an inner ear defect, including lack of responsiveness to sound, hyperactivity, head tossing, and circling. We have investigated the effects of a lack of myosin VI on the development of the sensory hair cells of the cochlea in these mutants. In normal mice, the hair cells sprout microvilli on their upper surface, and some of these grow to form a crescent or V-shaped array of modified microvilli, the stereocilia. In the mutants, early stages of stereocilia development appear to proceed normally because at birth many stereocilia bundles have a normal appearance, but in places there are signs of disorganisation of the bundles. Over the next few days, the stereocilia become progressively more disorganised and fuse together. Practically all hair cells show fused stereocilia by 3 days after birth, and there is extensive stereocilia fusion by 7 days. By 20 days, giant stereocilia are observed on top of the hair cells. At 1 and 3 days after birth, hair cells of mutants and controls take up the membrane dye FM1-43, suggesting that endocytosis occurs in mutant hair cells. One possible model for the fusion is that myosin VI may be involved in anchoring the apical hair cell membrane to the underlying actin-rich cuticular plate, and in the absence of normal myosin VI this apical membrane will tend to pull up between stereocilia, leading to fusion. Copyright 1999 Academic Press.

26/7/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10109561 99329345
Cochlear nerve projections to the small cell shell of the cochlear nucleus: the neuroanatomy of extremely thin sensory axons.
Hurd LB; Hutson KA; Morest DK
Department of Anatomy and Center for Neurological Sciences, The University of Connecticut Health Center, Farmington, Connecticut 06030-3405, USA.
Synapse (UNITED STATES) Aug 1999, 33 (2) p83-117, ISSN 0887-4476 Journal Code: VFL
Contract/Grant No.: R01DC00127, DC, NIDCD; T32DC00025, DC, NIDCD; F32DC00038, DC, NIDCD
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Labeling cochlear nerve fibers in the inner ear of chinchillas with biotinylated dextran polyamine was used to trace the thin fibers (Type II), which likely innervate outer hair cells. These axons, 0. 1-0.5 microm in diameter, were distinguished from the thicker Type I, fibers innervating inner hair cells, and traced to small-cell clusters in the cochlear nucleus. This study provided two major new insights into the outer hair cell connections in the cochlear nucleus and the potential significance of very thin axons and synaptic nests, which are widespread in the CNS. 1) EM serial reconstructions of labeled and unlabeled material revealed that Type II axons rarely formed synapses with conventional features (vesicles gathered at junctions). Rather, their endings contained arrays of endoplasmic reticulum and small spherical vesicles without junctions. 2) Type II axons projected predominantly to synaptic nests, where they contacted other endings and dendrites of local interneurons (small stellate and mitt cells, but not granule cells). Synaptic nests lacked intrinsic glia and, presumably, their high-affinity amino acid transporters. As functional units, nests and their Type II inputs from outer hair cells may contribute to an analog processing mode, which is slower, more diffuse,

longer-lasting, and potentially more plastic than the digital processors addressed by inner hair cells. Copyright 1999 Wiley-Liss, Inc.

26/7/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10010125 99294968
Convergent, self-encoded bead sensor arrays in the design of an artificial nose.
Dickinson TA; Michael KL; Kauer JS; Walt DR
Department of Chemistry, Tufts University, Medford, Massachusetts 02155, USA.
Anal Chem (UNITED STATES) Jun 1 1999, 71 (11) p2192-8, ISSN 0003-2700 Journal Code: 4NR
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We report a new approach to designing an artificial nose based on high-density optical arrays that directly incorporate a number of structural and operational features of the olfactory system. The arrays are comprised of thousands of microsphere (bead) sensors , each belonging to a discrete class, randomly dispersed across the face of an etched optical imaging fiber. Beads are recognized and classified after array assembly by their unique, "self-encoded" response pattern to a selected vapor pulse. The high degree of redundancy built into the array parallels that found in nature and affords new opportunities for chemical - sensor signal amplification. Since each bead is independently addressable through its own light channel, it is possible to combine responses from same-type beads randomly distributed throughout the array in a manner reminiscent of the sensory -neuron convergence observed in the mammalian olfactory system. Signal-to-noise improvements of approximately n1/2 have been achieved using this method.

26/7/4 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09937536 99218214
Optical mapping of neural network activity in chick spinal cord at an intermediate stage of embryonic development.
Arai Y; Momose-Sato Y; Sato K; Kamino K
Department of Physiology, Tokyo Medical and Dental University School of Medicine, Tokyo 113-8519, Japan.
J Neurophysiol (UNITED STATES) Apr 1999, 81 (4) p1889-902, ISSN 0022-3077 Journal Code: JC7
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We have applied multiple-site optical recording of transmembrane potential changes to recording of neuronal pathway/network activity from embryonic chick spinal cord slice preparations. Spinal cord preparations were dissected from 8-day-old chick embryos at Hamburger-Hamilton stage 33, and transverse slice preparations were prepared with the 13th cervical spinal nerve or with the 2nd or 5th lumbosacral spinal nerve intact. The slice preparations were stained with a voltage-sensitive merocyanine-rhodanine dye (NK2761). Transmembrane voltage-related optical

(dye -absorbance) changes evoked by spinal nerve stimulation with positive square-current pulses using a suction electrode were recorded simultaneously from many loci in the preparation, using a 128- or 1,020-element photodiode array . Optical responses were detected from dorsal and ventral regions corresponding to the posterior (dorsal) and anterior (ventral) gray horns. The optical signals were composed of two components, fast spike-like and slow signals. In the dorsal region, the fast spike-like signal was identified as the presynaptic action potential in the sensory nerve and the slow signal as the postsynaptic potential. In the ventral region, the fast spike-like signal reflects the antidromic action potential in motoneurons, and the slow signal is related to the postsynaptic potential evoked in the motoneuron. In preparations in which the ventral root was cut microsurgically, the antidromic action potential-related optical signals were eliminated. The areas of the maximal amplitude of the evoked signals in the dorsal and ventral regions were located near the dorsal root entry zone and the ventral root outlet zone, respectively. Quasiconcentric contour-line maps were obtained in the dorsal and ventral regions, suggesting the functional arrangement of the dorsal and ventral synaptic connections. Synaptic fatigue induced by repetitive stimuli in the ventral synapses was more rapid than in the dorsal synapses. The distribution patterns of the signals were essentially similar among C13, LS2, and LS5 preparations, suggesting that there is no difference in the spatiotemporal pattern of the neural responses along the rostrocaudal axis of the spinal cord at this developmental stage. In the ventral root-cut preparations, comparing the delay times between the ventral slow optical signals, we have been able to demonstrate that neural network-related synaptic connections are generated functionally in the embryonic spinal cord at Hamburger-Hamilton stage 33.

26/7/5 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09795186 99045807
A biosensor based on magnetoresistance technology.
Baselt DR; Lee GU; Natesan M; Metzger SW; Sheehan PE; Colton RJ
Naval Research Laboratory, Washington DC 20375-5342, USA. dbaselt@stm2.nrl.navy.mil
Biosens Bioelectron (ENGLAND) Oct 1 1998, 13 (7-8) p731-9, ISSN 0956-5663 Journal Code: AKA
Languages: ENGLISH
Document type: JOURNAL ARTICLE
We are developing a biosensor that will measure, at the level of single molecules, the forces that bind DNA-DNA, antibody-antigen, or ligand-receptor pairs together. The Bead Array Counter (BARC) will use these interaction forces to hold magnetic microbeads to a solid substrate. Microfabricated magnetoresistive transducers on the substrate will indicate whether or not the beads are removed when pulled by magnetic forces. By adapting magnetoresistive computer memory technology, it may be possible to fabricate millions of transducers on a chip and detect or screen thousands of analytes. The multi-analyte capability of this portable sensor would be ideal for on-site testing, while the potential to directly gauge intermolecular interaction strengths suggests drug discovery applications.

26/7/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09741223 99045803
Optical sensor arrays for odor recognition.
Walt DR; Dickinson T; White J; Kauer J; Johnson S; Engelhardt H; Sutter J ; Jurs P
Department of Chemistry, Tufts University, Medford, MA 02155, USA.
Biosens Bioelectron (ENGLAND) Sep 15 1998, 13 (6) p697-9, ISSN 0956-5663 Journal Code: AKA
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Optical sensor arrays containing fluorescent solvatochromatic dyes immobilized in a plurality of polymers generate information-rich responses upon exposure to organic vapors. The response profiles are used to train a variety of computational networks such that subsequent exposure of the array to the vapors enables them to be classified and/or quantified. A number of strategies can be taken to enhance sensitivity and to increase sensor diversity.

26/7/7 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09688362 97374228
Generation of biotin/avidin/enzyme nanostructures with maskless photolithography.
Dontha N; Nowall WB; Kuhr WG
Department of Chemistry, University of California, Riverside 92521, USA.
Anal Chem (UNITED STATES) Jul 15 1997, 69 (14) p2619-25, ISSN 0003-2700 Journal Code: 4NR
Contract/Grant No.: GM44112-01A1, GM, NIGMS
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Micrometer-sized domains of a carbon surface are modified to allow derivatization to attach redox enzymes with biotin/avidin technology. These sites are spatially segregated from and directly adjacent to electron transfer sites on the same electrode surface. The distance between these electron transfer sites and enzyme-loaded domains must be kept to a minimum (e.g., less than 5 microns) to maintain the fast response time and high sensitivity required for the measurement of neurotransmitter dynamics. This is accomplished through the use of photolithographic attachment of photobiotin using an interference pattern from a UV laser generated at the electrode surface. This will allow the construction of microscopic arrays of active enzyme sites on a carbon fiber substrate while leaving other sites underivatized to facilitate electron transfer reactions of redox mediators, thus maximizing enzyme activity and detection of the enzyme mediator. The ultimate sensitivity of these sensors will be realized only through careful characterization of the carbon electrode surface with respect to its chemical structure and electron transfer properties following each step of the enzyme immobilization process. The characterization of specific modifications of micrometer regions of the carbon surface requires analytical methodology that has both high spatial resolution and sensitivity. We have used fluorescence microscopy with a cooled CCD imaging system to visualize the spatial distribution of enzyme

immobilization sites (indicated by fluorescence from Texas Red-labeled avidin) across the carbon surface. The viability of the enzyme attached to the surface in this manner was demonstrated by imaging the distribution of an insoluble, fluorescent product. An atomic force microscope was used to obtain high-resolution images that probe the heterogeneity of the enzyme sites.

26/7/8 (Item 8 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09676572 96345665
A chemical-detecting system based on a cross-reactive optical sensor array [see comments]
Dickinson TA; White J; Kauer JS; Walt DR
The Max Tishler Laboratory for Organic Chemistry, Department of Chemistry, Tufts University, Medford, Massachusetts 02155, USA.
Nature (ENGLAND) Aug 22 1996, 382 (6593) p697-700, ISSN 0028-0836 Journal Code: NSC
Comment in Nature 1996 Aug 22;382(6593):670
Languages: ENGLISH
Document type: JOURNAL ARTICLE
The vertebrate olfactory system has long been recognized for its extraordinary sensitivity and selectivity for odours. Chemical sensors have been developed recently that are based on analogous distributed sensing properties, but although an association between artificial devices and the olfactory system has been made explicit in some previous studies, none has incorporated comparable mechanisms into the mode of detection. Here we describe a multi-analyte fibre -optic sensor modelled directly on the olfactory system, in the sense that complex, time-dependent signals from an array of sensors provide a 'signature' of each analyte. In our system, polymer-immobilized dye molecules on the fibre tips give different fluorescent response patterns (including spectral shifts, intensity changes, spectral shape variations and temporal responses) on exposure to organic vapours, depending on the physical and chemical nature (for example, polarity, shape and size) of both the vapour and the polymer. We use video images of temporal responses of the multi-fibre tip as the input signals to train a neural network for vapour recognition. The system is able to identify individual vapours at different concentrations with great accuracy. 'Artificial noses' such as this should have wide potential application, most notably in environmental and medical monitoring.

26/7/9 (Item 9 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09492766 98214105
Randomly ordered addressable high-density optical sensor arrays.
Michael KL; Taylor LC; Schultz SL; Walt DR
Max Tishler Laboratory for Organic Chemistry, Department of Chemistry, Tufts University, Medford, Massachusetts 02155, USA.
Anal Chem (UNITED STATES) Apr 1 1998, 70 (7) p1242-8, ISSN 0003-2700 Journal Code: 4NR
Contract/Grant No.: GM 48142, GM, NIGMS
Languages: ENGLISH

Document type: JOURNAL ARTICLE

Array -based sensors provide an architecture for multianalyte sensing. In this paper, we report a new approach for array fabrication. Sensors are made by immobilizing different reactive chemistries on the surfaces of microspheres . Sensor arrays are prepared by randomly distributing a mixture of microsphere sensors on an optical substrate containing thousands of micrometer-scale wells. The sensors occupy a different location from array to array ; thus the identity of each sensor is ascertained and registered on the detector using encoding schemes, rather than by a predetermined location in the array . The approach thereby shifts the demand from fabrication to signal processing. The availability of commercial image analysis software makes such a shift both cost-effective and time efficient.

26/7/10 (Item 10 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09261628 97221227

Neural network classification and quantification of organic vapors based on fluorescence data from a fiber- optic sensor array.

Sutter JM; Jurs PC

Department of Chemistry, Pennsylvania State University, University Park 16802, USA.

Anal Chem (UNITED STATES) Mar 1 1997, 69 (5) p856-62, ISSN 0003-2700
Journal Code: 4NR

Languages: ENGLISH

Document type: JOURNAL ARTICLE

Computational neural networks have been developed to classify and quantify nine organic vapors. The neural network analyses used data that consisted of the change in fluorescence from a sensor array that consisted of 19 fiber optics with immobilized dye in polymer matrices. Plots of change in fluorescence intensity versus time were measured as pulses of analyte were presented to the sensor array . Descriptors were calculated from the intensity vs time plots, and they were used to build neural network models that accurately classified and quantified each of the nine analytes. Most of the data were used to train the neural networks (training set members), some were used to assist termination of training (cross-validation set members), and some were used to validate the models (prediction set members). Classification rates approaching 100% were achieved for the training set data, and 90% of the members in the prediction set were correctly classified. In addition, 97% of the prediction set observations were assigned a correct relative concentration.

26/7/11 (Item 11 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09165550 97358625

Afferent innervation of gastrointestinal tract smooth muscle by the [illegible] branch of the vagus.

ps RJ; Baronowsky EA; Powley TL

University, West Lafayette, Indiana 47907, USA.

p Neurol (UNITED STATES) Jul 28 1997, 384 (2) p248-70, ISSN

0021-9967 Journal Code: HUV
Contract/Grant No.: DK27627, DK, NIDDK; MH01023, MH, NIMH
Languages: ENGLISH
Document type: JOURNAL ARTICLE

To survey the vagal hepatic branch afferent projections to and the terminal specializations in the gastrointestinal tract, male Sprague-Dawley rats were given subdiaphragmatic vagotomies, sparing only the common hepatic branch, and were injected with 3 microl of 8% wheat germ agglutinin-horseradish peroxidase in the left nodose ganglion. The nodose ganglia, the stomach, the first 8 cm of duodenum, and the cecum were prepared as wholemounts and were processed with tetramethyl benzidine. Hepatic afferent innervation of the ventral stomach consisted of one or more bundles entering at the lower esophageal sphincter and coursing to the forestomach, where they branched into distinct terminal fields. The only fibers on the dorsal forestomach were distal branches and terminals that wrapped around the greater curvature from the ventral side. Hepatic afferents supplied the forestomach with both intraganglionic laminar endings (IGLEs; putative mechanosensors that coordinate peristalsis) and intramuscular arrays (IMAs; considered tension receptors). IGLEs were located primarily on the ventral wall of the stomach, whereas IMAs were distributed symmetrically. Afferents were also supplied to the distal antrum and the pylorus, with pyloric innervation consisting almost exclusively of IMAs. Innervation of the proximal duodenum was denser in the first 3 cm and decreased progressively caudally, with only meager innervation after 6 cm. Cecal innervation consisted of a few fibers at the ileocecal junction. Duodenal and cecal endings were predominately IGLEs. These results indicate that the hepatic branch carries sensory information from the forestomach, antrum, pylorus, duodenum, and cecum. Furthermore, the different terminals it supplies suggest that the branch mediates a multiplicity of gastrointestinal functions.

26/7/12 (Item 12 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09046214 97263260
In situ fluorescence imaging of localized corrosion with a pH-sensitive imaging fiber.
Panova AA; Pantano P; Walt DR
Max Tishler Laboratory for Organic Chemistry, Department of Chemistry, Tufts University, Medford, Massachusetts 02155, USA.
Anal Chem (UNITED STATES) Apr 15 1997, 69 (8) p1635-41, ISSN 0003-2700 Journal Code: 4NR
Contract/Grant No.: GM 48142, GM, NIGMS
Languages: ENGLISH
Document type: JOURNAL ARTICLE

A fiber -optic pH-imaging sensor array capable of both visualizing remote corrosion sites and measuring local chemical concentrations at these sites was applied to realtime corrosion monitoring. The imaging fiber's distal face, containing an immobilized pH-sensitive fluorescent dye , was brought into contact with metal surfaces submerged in aqueous buffers and fluorescence images were acquired as a function of time. Heterogeneous fluorescence signals were observed due to both pH increases at cathodic surface sites and pH decreases at anodic surface sites. These fluorescence signals showed both localization and rates of corrosion activity. Three corrosion processes were investigated, galvanic corrosion at a

copper/aluminum interface and crevice corrosion and pitting at a stainless steel surface. The spatial resolution of the technique was limited by proton/hydroxide diffusion and the diameter of the individually clad optical fibers comprising the imaging bundle.

26/7/13 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08119303 95164749
Uniglomerular projection neurons participate in early development of olfactory glomeruli in the moth Manduca sexta.
Malun D; Oland LA; Tolbert LP
Arizona Research Laboratories, University of Arizona, Tucson 85721.
J Comp Neurol (UNITED STATES) Dec 1 1994, 350 (1) p1-22, ISSN 0021-9967 Journal Code: HUV
Contract/Grant No.: NS20040, NS, NINDS; NS28495, NS, NINDS; NS20040, NS, NINDS
Languages: ENGLISH
Document type: JOURNAL ARTICLE
Glomerular organization of the antennal (olfactory) lobe is initiated by the arrival of sensory axons from the antenna. Bundles of axon terminals coalesce into spheroidal knots of neuropil called protoglomeruli. Previous studies have suggested that the protoglomeruli form a template for the mature glomerular array , but an early role for projection neurons in establishing the template has not been excluded. We examined with the confocal laser scanning microscope the morphological development of the uniglomerular projection neurons during the stages in which glomeruli are constructed. Groups of projection neurons were stained with the lipophilic dye DiI to assess the development of the population as a whole; individual neurons were filled intracellularly with Lucifer Yellow to examine in detail the development of shape. In some preparations, sensory axons and glial cells also were labeled by using different fluorescent dyes to reveal possible interactions between projection neuron dendrites and sensory axons or glial cells. Protoglomeruli form in a wave beginning at the entry point of the antennal nerve and proceeding across the lobe to the opposite pole. A second wave follows in which projection neurons become tufted and innervate the newly formed glomeruli, sometimes extending into the glial border surrounding the protoglomeruli. In animals deprived of sensory axons, some projection neurons still form tufted dendritic trees and, in one region of the neuropil, a glomerulus-like structure. The early presence of projection neuron processes in the protoglomeruli and the formation of at least one glomerulus-like structure in unafferented lobes suggest that uniglomerular projection neurons play an active role in the construction of olfactory glomeruli.

26/7/14 (Item 14 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08059840 95068991
Fabrication of patterned sensor arrays with aryl azides on a polymer-coated imaging optical fiber bundle.
Bronk KS; Walt DR
Max Tishler Laboratory for Organic Chemistry, Department of Chemistry,

Tufts University, Medford, Massachusetts 02155.
Anal Chem (UNITED STATES) Oct 15 1994, 66 (20) p3519-20, ISSN 0003-2700 Journal Code: 4NR
Contract/Grant No.: GM-48142, GM, NIGMS
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Arrays of sensing regions are photodeposited on the distal tip of a single imaging optical fiber. First, the distal surface of the fiber is spin-coated with a thin film of poly(hydroxyethyl methacrylate). The fluorophor is then derivatized with a photoreactive group and subsequently immobilized in a finite area of the film by discrete illumination. Dye incorporation occurs only in the illuminated areas, creating distinct regions of analyte-sensitive fluorescent dye at the fiber's distal end. This paper describes both the chemistry and the manipulations required to make an optical microarray and demonstrates the technique with pH sensors . The fabrication of a four- sensor array is described along with performance data.

26/7/15 (Item 15 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07548669 93259245
Evoked changes of membrane potential in guinea pig sensory neocortical slices: an analysis with voltage-sensitive dyes and a fast optical recording method.
Albowitz B; Kuhnt U
Max Planck Institute for Biophysical Chemistry, Department of Neurobiology, Gottingen, Germany.
Exp Brain Res (GERMANY) 1993, 93 (2) p213-25, ISSN 0014-4819 Journal Code: EP2
Languages: ENGLISH
Document type: JOURNAL ARTICLE

Coronal slices from guinea pig visual neocortex were stained with voltage-sensitive fluorescent dyes RH414 or RH795. Activity was evoked by electrical stimulation of either white matter or layer I. Emitted-light intensity changes representing summated changes of membrane potential were recorded by a 10 x 10 photodiode array with a temporal resolution of 0.4 ms and a spatial resolution of 60 microns or 94 microns. Following either stimulation of layer I or of white matter, maximal activity was located close to the respective stimulation electrode, in upper layer III/II, and between layer IV and V. With stimulation of the white matter, additional peak activity was recorded from upper layer VI. Non-synaptic activity was separated from mixed (synaptic and non-synaptic) activity by comparing responses obtained in standard perfusion medium with those obtained in perfusion medium from which the calcium was omitted, such that synaptic transmission was blocked. With stimulation of the white matter, most of the evoked activity in lower cortical layers was of non-synaptic origin. This non-synaptic activity consisted of early and fast potentials, which were predominant in layer VI and probably represented presynaptic fibre activity, and of slower components that were presumably of antidromic origin. Significant postsynaptic activity was only found in upper layer III/II. In contrast, with stimulation of layer I, most of the evoked activity was of postsynaptic origin. Early and fast non-synaptic potentials consisting of presynaptic fibre activity were confined to layer I. Slower non-synaptic activity, that might reflect direct dendritic activation, was

minimal and was confined to upper cortical layers. Thus, following either stimulation of layer I or of white matter, the major postsynaptic components were found in upper layer III/II. It is suggested that the postsynaptic response following stimulation of white matter resulted from di- or polysynaptic activation by afferent fibres. The postsynaptic response to stimulation of layer I was presumably a monosynaptic activation of apical dendrites from pyramidal cells by layer I horizontal fibres. Activity following stimulation of white matter spread faster than activity following stimulation of layer I. This might reflect the difference in active conduction along afferent and efferent fibres on the one hand and in passive conductance along the dendritic tree on the other hand.

26/7/16 (Item 16 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

05497808 88163882
On-line sensors for coagulation proteins : concept and progress report.
Andrade JD; Herron J; Lin JN; Yen H; Kopecek J; Kopeckova P
Department of Bioengineering, College of Engineering, University of Utah, Salt Lake City 84112.
Biomaterials (ENGLAND) Jan 1988, 9 (1) p76-9, ISSN 0142-9612
Journal Code: A4P
Contract/Grant No.: HL 37046, HL, NHLBI
Languages: ENGLISH
Document type: JOURNAL ARTICLE; REVIEW; REVIEW, TUTORIAL
The assessment of blood damage and of the activation of the coagulation, complement and/or inflammatory systems by cardiovascular and extracorporeal devices is difficult at best. Immunoassay methods are now available for the measurement of many of the proteins , enzymes and peptides involved in coagulation, thrombosis, complement and inflammation. We present a long-range project and plan to develop an array of remote, on-line, semicontinuous immunosensors for selected coagulation proteins , based on fluoroimmunoassay principles. The free/bound separation step is performed optically. Excitation of fluorescence is performed via an evanescent wave produced by total internal reflection and waveguide optics. Fluorescence emission is collected only in the near field. Means to deliver fluorescently-labelled reagent and to modify the antigen-antibody binding constant are presented and discussed. The results of non-specific binding, plasma-blood fluorescence, and blood compatibility are also discussed. (44 Refs.)

26/7/17 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11193057 BIOSIS NO.: 199799814202
Rapid sizing of polymorphic microsatellite markers by capillary array electrophoresis.
AUTHOR: Mansfield Elaine S(a); Vainer Marina; Harris Dennis W; Gasparini Paolo; Estivill Xavier; Surrey Saul; Fortina Paolo
AUTHOR ADDRESS: (a)Molecular Dynamics, Sunnyvale, CA**USA
JOURNAL: Journal of Chromatography A 781 (1-2):p295-305 1997
ISSN: 0021-9673

RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Genetic mapping and DNA sequencing projects could potentially be completed more rapidly by using capillary array electrophoresis (CAE) systems running 48-96 capillaries simultaneously. Currently, multiplex polymerase chain reaction (PCR) and multicolor fluorescent dye -labeling strategies are used to generate DNA profiles containing 18-24 genotypes per sample. By using 4-color fluorescence detection and these multiplex PCR strategies, a CAE system has the capacity to generate up to 5.5 million genotypes per year. CAE offers extremely fast, high-resolution separation of DNA and more automated sample processing than conventional systems because the labor-intensive slab-gel pouring and sample-loading steps are eliminated. We used a prototype CAE system in an ongoing linkage analysis study of inherited deafness in Mediterranean families. CA-repeat markers linked to deafness susceptibility genes on chromosomes 7, 11 and 13 were analyzed and DNA profiles generated which contain 6 markers per color. Fragment sizes of over 28,000 short tandem repeat alleles and 3200 CA-repeat alleles have been determined by CAE. An average sizing precision of +0.12 base pairs (bp) for fragments up to 350 hp was realized in 1-h runs. In addition, a versatile non-denaturing matrix was used to separate DNA sizing standards, restriction digests, and multiplex PCR samples. Application of this matrix to Duchenne muscular dystrophy exon deletion screening is also described. These CAE approaches should facilitate rapid genotyping of microsatellite markers and subsequent identification of disease-causing mutations.

26/7/18 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10993928 BIOSIS NO.: 199799615073
Combinatorial and chemotopic odorant coding in the zebrafish olfactory bulb visualized by optical imaging.
AUTHOR: Friedrich Rainer W(a); Korsching Sigrun I
AUTHOR ADDRESS: (a)Max-Planck-Inst. Entwicklungsbiol., Abteilung Physikalische Biol., D-72076 Tuebingen**Germany
JOURNAL: Neuron 18 (5):p737-752 1997
ISSN: 0896-6273
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Odors are thought to be represented by a distributed code across the glomerular modules in the olfactory bulb (OB). Here, we optically imaged presynaptic activity in glomerular modules of the zebrafish OB induced by a class of natural odorants (amino acids (AAs)) after labeling of primary afferents with a calcium-sensitive dye . AAs induce complex combinatorial patterns of active glomerular modules that are unique for different stimuli and concentrations. Quantitative analysis shows that defined molecular features of stimuli are correlated with activity in spatially confined groups of glomerular modules. These results provide direct evidence that identity and concentration of odorants are encoded by glomerular activity patterns and reveal a coarse chemotopic organization of the array of glomerular modules.

26/7/19 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10673265 BIOSIS NO.: 199799294410
Optical responses evoked by white matter stimulation in rat visual cortical slices and their relation to neural activities.
AUTHOR: Tanifuji Manabu(a); Yamanaka Atsushi; Sunaba Rintaro; Terakawa Susumu; Toyama Keisuke
AUTHOR ADDRESS: (a)Lab. Neural Information Processing, Frontier Res. Program, Inst. Physical Chem. Res., Hirosawa 2**Japan
JOURNAL: Brain Research 738 (1):p83-95 1996
ISSN: 0006-8993
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: To characterize optical responses (ORs) evoked by white matter (Wm) stimulation in slices of rat visual cortex (VC) stained with voltage sensitive dyes, time course of ORs in each layer was investigated by recording ORs with a linearly aligned photodiode array , and the spatial patterns of the ORs at specified time after stimulation were investigated by a CCD camera in combination with stroboscopic illumination. The ORs recorded by the photodiode array were an increase in absorption at 700 nm and a decrease in the wavelength below 650 nm, suggesting that the ORs were dye related. The ORs were compared with field potentials (FPs) to clarify that neural events were represented by the ORs, and in support of this view, we found that the first order spatial differentials of ORs and that of FPs were in good agreement. We further compared ORs with intracellular responses, and found that the ORs mainly represent postsynaptic potentials (PSPs) of VC neurons except for the deeper part of layer VI, where a component representing action potentials in fibers stimulated directly was observed. The time-lapse imaging of ORs showed that excitation first propagated vertically up to layer I and subsequently in the horizontal direction along layers II-III and V-VI as in previous investigations. Spatio-temporal patterns of ORs under blockade of synaptic transmission were also investigated to reveal activity of fibers evoked by WM stimulation which produced such patterns of propagation.

26/7/20 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10197568 BIOSIS NO.: 199698652486
The interaction of imposed and inherent olfactory mucosal activity patterns and their composite representation in a mammalian species using voltage-sensitive dyes.
AUTHOR: Kent Paul F(a); Mozell Maxwell M; Murphy Stephen J; Hornung David E
AUTHOR ADDRESS: (a)Dep. Physiol., Room 3225 Weiskotten Hall, SUNY Health Sci. Cent., 766 Irving Ave., Syracuse, NY **USA
JOURNAL: Journal of Neuroscience 16 (1):p345-353 1996
ISSN: 0270-6474
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: From amphibian data, two mechanisms that could underlie the encoding of odorants by the mucosal activity patterns they engender are as follows: (1) receptors with similar odorant selectivities could be aggregated spatially on the mucosa (inherent patterns); (2) in analogy to gas chromatography, as odorants are drawn along the surface of the mucosa the strongly sorbed ones could be deposited preferentially upstream, whereas the weakly sorbed ones could be distributed more evenly (imposed patterns). Do both of these possible coding mechanisms operate in mammals and, if so, how do they interact in giving composite patterns (imposed + inherent)? Fluorescence changes in di-4-ANEPPS applied to rat mucosas were monitored by a 10 times 10 pixel photodiode array . To observe the inherent patterns, three odorants of varying sorbabilities first were puffed uniformly onto the entire mucosa mounted in a Delrin chamber. To bring out the imposed patterns, the chamber was then sealed to replicate anatomically the rat's nasal cavity, and these same odorants were drawn at three flow rates along the mucosal flow path. The results demonstrated for the first time the existence of imposed patterns in a mammal. The strongly sorbed odorants, unlike the weakly sorbed one, showed marked imposed patterns. Within physiological limits, increasing the flow rate decreased the magnitude of the imposed patterns. One might consider strategies that the olfactory process could use either to negate or to take advantage of the chromatographic effect, because the lability of the composite patterns with changing stimulus conditions raises questions about their role in odorant encoding .

10197565 BIOSIS NO.: 199698652483
High-speed optical imaging of afferent flow through rat olfactory bulb slices: Voltage-sensitive dye signals reveal periglomerular cell activity.
AUTHOR: Senseman David M(a)
AUTHOR ADDRESS: (a)Div. Life Sci., Univ. Tex. at San Antonio, San Antonio, TX 78249**USA
JOURNAL: Journal of Neuroscience 16 (1):p313-324 1996
ISSN: 0270-6474
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Fast, multiple-site optical recording and video imaging techniques were combined to visualize the olfactory processing stream as it flowed through rat olfactory bulb slices stained with the voltage-sensitive dye RH155. A 464 element photodiode detector array was used to record the voltage-sensitive dye signals. Focal electrical stimulation of the olfactory nerve layer evoked relatively large optical responses in the olfactory nerve and glomerular layers but only small responses within the external plexiform layer. With paired-pulse stimulation, glomerular attenuation was evident in signals recorded from the glomerular and external plexiform layers but not from the olfactory nerve layer. At very high recording speeds (lt 0.2 msec/frame), the presynaptic component of the olfactory processing stream could be followed as it flowed through the olfactory nerve layer and into the

glomerular layer, where its amplitude rapidly declined. This declie was followed by a reciprocal rise in a postsynaptic depolarization that was largely restricted to the glomerular layer. Spatiotemporal interactions between overlapping afferent streams within the glomerular layer were observed and partially characterized. The optically recorded glomerular layer response was largely resistant to bath application of GABA-A receptor antagonists but was sensitive to manipulations of external chloride concentration and to bath application of a stilbene derivative, 4-acetamido-4'-isothiocyanatostilbene-2,2'-disulfonic acid known to block Cl- conductances. It is suggested that the voltage-sensitive dye signals recorded from the glomerular layer reflect activity in periglomerular cells and that Cl- efflux through non-GABA-A chloride channels contributes to the postsynaptic depolarization of these cells after olfactory nerve stimulation.

26/7/22 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08950713 BIOSIS NO.: 199396102214
Tonotopic organization, architectonic fields, and connections of auditory cortex in macaque monkeys.
AUTHOR: Morel A; Garraghty P E; Kaas Jon H(a)
AUTHOR ADDRESS: (a)Dep. Psychol., 301 Wilson Hall, Vanderbilt Univ., Nashville, TN 37240**USA
JOURNAL: Journal of Comparative Neurology 335 (3):p437-459 1993
ISSN: 0021-9967
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Microelectrode recordings were used to investigate the tonotopic organization of auditory cortex of macaque monkeys and guide the placement of injections of wheat germ agglutinin-horse radish peroxidase (WGA-HRP) and fluorescent dyes . Anatomical and physiological results were later related to histological distinctions in the same brains after sections were processed for cytoarchitecture, myeloarchitecture, acetylcholinesterase (AchE), or cytochrome oxidase (CO). The experiments produced several major findings. (1) Neurons throughout a broad expanse of cortex were highly responsive to pure tones, and best frequencies could be determined for neurons in arrays of recording sites. (2) The microelectrode recordings revealed two systematic representations of tone frequencies, the primary area (AI) and a primary-like rostral field (R) as previously described. The representation of high to low frequency tones in AI was largely caudorostral along the plane of the sulcus. A reversal of the order of representation of frequencies occurred in R. (3) AI and R together were coextensive with a koniocellular, densely myelinated zone that expressed high levels of AchE and CO. These architectonic features were somewhat less pronounced in R than AI, but a clear border between the two areas was not apparent. (4) Cortex bordering AI and R was less responsive to tones, but when best frequencies for neurons could be determined, they matched those for adjoining parts of AI and R. (5) Architectonically distinct regions were apparent within some of the cortex bordering AI and R. (6) The major ipsilateral cortical connections of AI were with R and cortex immediately lateral and medial to AI. (7) Callosal connections of AI were predominately with matched

locations in the opposite AI, but they also included adjoining fields. (8) Neurons in the ventral (MG-Vv), medial (MG-M), and dorsal (MG-D) nuclei of the medial geniculate complex projected to AI and cortex lateral to Al. (9) Injections in cortex responsive to high frequency tones labeled more dorsal parts of MG-V than injections in cortex responsive to low frequency tones.

26/7/23 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07883908 BIOSIS NO.: 000092132608
A FIBER- OPTIC CHEMICAL SENSOR WITH DISCRETE SENSING SITES
AUTHOR: BARNARD S M; WALT D R
AUTHOR ADDRESS: MAX TISHLER LAB. ORG. CHEM., DEP. CHEM., TUFTS UNIV., MEDFORD, MASS. 02155, USA.
JOURNAL: NATURE (LOND) 353 (6342). 1991. 338-340.
FULL JOURNAL NAME: NATURE (London)
CODEN: NATUA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A LONG-standing goal of clinical medicine has been the continuous, in situ measurement of solute concentrations (such as pH, pCO2 and pO2), particularly in blood. Blood monitoring is accomplished at present by analysing discrete samples at a centralized, remote clinical laboratory, causing delays between sampling and analysis. Most multi-analyte sensors developed for 'bedside' in situ monitoring1 consist of several sensors fabricated into a sensor array or bundle2,3. This approach is not ideal where sensor size is an important factor. Here we describe a technique that enables the development of a compact, multi-analyte fibre -optic chemical sensor . The technique is based on localized photopolymerization of appropriate dye indicators on the face of an imaging fibre. The sensing sites flouresce to a degree controlled by analyte concentration, intensities being monitored simultaneously with an enhanced charge-coupled device (CDD) video camera. We present results from a sensor that contains three individual pH-sensitive areas, and indicate how multi-analyte sensitivity may be achieved.

26/7/24 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07662311 BIOSIS NO.: 000092019732
TENSILE REGULATION OF AXONAL ELONGATION AND INITIATION
AUTHOR: ZHENG J; LAMOUREUX P; SANTIAGO V; DENNERLL T; BUXBAUM R E; HEIDEMANN S R
AUTHOR ADDRESS: DEP. PHYSIOLOGY, MICHIGAN STATE UNIVERSITY, EAST LANSING, MICH. 48824-1101.
JOURNAL: J NEUROSCI 11 (4). 1991. 1117-1125.
FULL JOURNAL NAME: Journal of Neuroscience
CODEN: JNRSD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Neurites of chick sensory neurons in culture were attached by their growth cones to glass needles of known compliance and were subjected to increasing tensions as steps of constant force; each step lasted 30-60 min and was 25-50 .mu.dyn greater than the previous step. After correcting for elastic stretching, neurite elongation rate increased in proportion to tension magnitude greater than a tension threshold. The value of the tension threshold required for growth varied between 25 and 560 .mu.dyn, with most between 50 and 150 .mu.dyn. The growth sensitivity of neurites to tension was surprisingly high: an increase in tension of 1 .mu.dyn increased the elongation rate an average of about 1.5 .mu.m/hr. The linear relationships between growth rate and tension provides a simple control mechanism for axons to accomodate tissue expansion in growing animals that consistently maintains a moderate rest tension on axons. Styrene microspheres treated with polyethyleneimine were used to label the surface of neurites in order to determine the site and pattern of surface addition during the experimental "towed growth" regime. New membrane is added interstitially throughout the neurite, but different regions of neurite vary widely in the amount of new membrane added. This contrasts with membrane addition specifically at the distal end in growth-cone-mediated growth. The different sites for membrane addition in growth mediated by towing and by the growth cone indicate that the membrane addition process is sensitive to the mode of growth. We confirmed the finding of Bray (1984) that neurites can be initiated de novo by application of tension to the cell margin of chick sensory neurons. Initiation required tensions above some threshold and tension magnitude very similar to those required for neurite elongation. Initiated neurites developed growth cones capable of normal motility and axonal elongation. Such neurites also contained a normal array of microtubules as assessed by immunofluorescence and by electron microscopy.

26/7/25 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE

07593666 EMBASE No: 1999085038
Olfactory development in invertebrates
Tolbert L.P.
L.P. Tolbert, Arizona Research Laboratories, Division of Neurobiology, University of Arizona, PO Box 210077, Tucson, AZ 85721-0077 United States
AUTHOR EMAIL: tolbert@neurobio.arizona.edu
Annals of the New York Academy of Sciences (ANN. NEW YORK ACAD. SCI.) (United States) 1998, 855/- (95-103)
CODEN: ANYAA ISSN: 0077-8923
DOCUMENT TYPE: Journal; Conference Paper
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 52

Invertebrate olfactory systems offer many advantages for cellular and molecular studies of development and for functional studies of developmental plasticity. For example, nematodes have chemical senses that can be studied using genetic approaches. Arthropods, which include insects and crustacea, have the advantages that certain neurons can be reliably identified from one individual to another, and that olfactory receptor

neurons are located on peripheral appendages and thus can be manipulated independently of their brain targets, even very early in development. Among the insects, olfactory learning can be displayed and used as a basis for studying olfactory plasticity in bees; genes are especially tractable in flies; individual growth cones can be visualized in the grasshopper embryo; and receptor neurons and glomeruli of known olfactory specificity and behavioral significance can be followed during early development in moths. In addition, many insect nervous systems are amenable to organ culture and dissociated-cell culture, opening the door to experimental studies of cellular interactions that can not be performed in situ. Recent research in the moth Manduca sexta attempts to identify the nature of the interactions between olfactory sensory axons, olfactory neurons of the brain, and glial cells in the creation of the array of glomeruli that underlie olfaction in the adult. Results indicate that timing of the ingrowth of olfactory receptor axons is critical for normal glomerulus development, that a subset of axons expresses a fasciclin II-like molecule that may play a role in guidance of their growth, and that glial cells must surround developing glomeruli in order to stabilize the 'protoglomerular' template made by receptor axon terminals. Moreover, glial cells are dye -coupled to each other early in glomerulus development and gradually become uncoupled. Electrical activity in neurons is not necessary for glomerulus formation; and some intercellular interactions, perhaps involving soluble factors, appear to involve tyrosine phosphorylation. In sum, a detailed picture is emerging of the cellular interactions that lead to the formation of glomeruli.

26/7/26 (Item 2 from file: 73)
DIALOG(R)File 73:EMBASE

07304924 EMBASE No: 1998184966
Current trends in 'artificial-nose' technology
Dickinson T.A.; White J.; Kauer J.S.; Walt D.R.
T.A. Dickinson, Department of Chemistry, Tufts University, 62 Talbot Ave., Medford, MA 02155 United States
AUTHOR EMAIL: tdickins@emerald.tufts.edu
Trends in Biotechnology (TRENDS BIOTECHNOL.) (United Kingdom) 1998, 16/6 (250-258)
CODEN: TRBID ISSN: 0167-7799
DOCUMENT TYPE: Journal; Review
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 58

Basic principles derived from biological olfaction, such as combining semiselective sensor arrays with pattern recognition have been used to develop instrumentation capable of broad-band chemical detection and quantification. Commercially available instruments are useful in areas including quality control in the food, beverage and fragrance industries, environmental monitoring, chemical-purity and -mixture analysis, and medical diagnostics. Ongoing research is aimed at the development of more-advanced instruments that are smaller, cheaper, faster and more stable and reliable. These second-generation instruments are likely to find an increasing number of applications, including the on-line monitoring of fermentation and other bioprocessor.

26/7/27 (Item 3 from file: 73)
DIALOG(R)File 73:EMBASE

05974214 EMBASE No: 1995001383
Medullary visceral reflex circuits: Local afferents to nucleus tractus solitarii synthesize catecholamines and project to thoracic spinal cord
Mtui E.P.; Anwar M.; Reis D.J.; Ruggiero D.A.
Division of Neurobiology, Cornell University Medical College, 411 East 69th Street,New York, NY 10021 United States
Journal of Comparative Neurology (J. COMP. NEUROL.) (United States) 1995, 351/1 (5-26)
CODEN: JCNEA ISSN: 0021-9967
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Visceral feedback circuits in lower brainstem were elucidated with retrograde tracers by mapping neurons that issue local projections to the general visceral afferent division of the nucleus tractus solitarii (NTS) and dorsomotor vagal nucleus (DMX) in adult male rats. In study 1, spinal and intramedullary afferents to the visceral-sensorimotor complex (NTS-X) were traced to contiguous populations of cell bodies arranged in cylindrical segmental organization, NTS-X afferents derive from curvilinear arrays of neurons that parallel the efferent radiations of the solitariotegmental tract. Newly discovered afferents arise from circumscribed cell groups in the dorsal reticular formation and periventricular zone. Another source was traced to a paraambigual cell column in the apex of the rostral ventrolateral reticular nucleus (n.RVL). In study 2, catecholaminergic afferents were initially defined with combined retrograde transport-immunocytochemical methods. Deposits of retrograde tracers into NTS-X transported to neurons containing tyrosine hydroxylase (TH) in the A1, C1, and C3 areas or phenylethanolamine N-methyltransferase (PNMT) in the C1 area of the n.RVL and C3 area. In study 3, it was revealed that NTS-X afferents arise, in part, as collaterals of thoracic reticulospinal neurons. Deposits of the retrograde fluorescent tracer Fluorogold into the upper thoracic cord and rhodamine-labeled microbeads into NTS-X transported to the same neurons within a subambigual locus in n.RVL and parts of nucleus raphe magnus. In study 4, dual retrograde tracer-immunocytochemical analysis demonstrated that catecholamines are synthesized by a subset of neurons in the n.RVL that issue collaterals to the NTS-X and thoracic cord. Double retrogradely labeled TH- or PNMT-immunoreactive cell bodies were restricted to the C1 area within a 450-mum column bordered rostrally by the facial nucleus and ventrally by the medullary subpial surface. We conclude that visceral reflex arcs are reciprocally organized. Targets of NTS projection are also sources of local NTS-X afferent innervation. Catecholaminergic and other local afferents from reticular formation, periventricular, and spinal gray may, via collaterals, simultaneously modulate visceral reflex excitability at the level of NTS and the outflow of autonomic and respiratory motoneurons.

26/7/28 (Item 4 from file: 73)
DIALOG(R)File 73:EMBASE

05532090 EMBASE No: 1993300189

The contribution of intracortical connections to horizontal spread of activity in the neocortex as revealed by voltage sensitive dyes and a fast optical recording method

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European Journal of Neuroscience (EUR. J. NEUROSCI.) (United Kingdom) 1993, 5/10 (1349-1359)
CODEN: EJONE ISSN: 0953-816X
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Coronal slices from guinea-pig visual neocortex were stained with voltage-sensitive fluorescence dyes RH414 or RH795. Activity was evoked by electrical stimulation of either the white matter or layer I. Emitted light intensity changes representing summated changes of membrane potential were recorded by a 10 x 10 photodiode array with a temporal resolution of 0.4 ms and a spatial resolution of 94 mum. The distribution and spread of activity in the horizontal direction was analysed. Following stimulation of the white matter or layer I, two regions of activity were differentiated in the medio-lateral direction a central region (-1 mm wide) of high-amplitude activity close to the stimulation electrode and, distant from the stimulation electrode, peripheral regions of low-amplitude activity. Central and peripheral regions differed in their rates of decline, their relative extent with stimulation of different sites and within different layers. The total extent of non-synaptic evoked activity did not exceed that of the central region of high-amplitude activity. Along the extent of non-synaptic activity, onset latencies of potentials were almost constant. Thus, activity of high amplitude in the central region was likely mediated by simultaneous activation of distributed afferent fibres. In contrast, no non-synaptic activity was found in peripheral regions. Therefore it is suggested that this low-amplitude activity was mediated without direct afferent activation but via long-distance intracortical horizontal pathways. These pathways are known to terminate in layer III, and accordingly latencies of responses in the periphery were shortest in upper cortical layers, whereas in the central region, latencies increased from lower to upper cortical layers.

01681147 EMBASE No: 1980112501

Fine structure of myotendinous junctions of ventricular papillary muscles of the cat (Felis domestica) and bat (Myotis lucifugus)

Kawamura K.; James T.N.; Urthaler F.; Hefner L.L.
Dept. Med., Univ. Alabama Med. Cent., Birmingham, Ala. 35294 United States

Japanese Circulation Journal (JPN. CIRC. J.) (Japan) 1979, 43/6 (547-569)
CODEN: JCIRA
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH

The ultrastructure of the myotendinous junction (MTJ) of the cardiac papillary muscle was studied in cat and bat. In both species findings were

similar for either ventricle. Toward the tip of the papillary muscle, myocytes are oriented in parallel array and each cell is narrowed in diameter. Longitudinal or oblique segments of intercalated discs became more prevalent than transverse segments. The distal ends of the last myocytes exhibited finger-like invaginations of the sarcolemma. The lateral sarcolemmae were longitudinally creased, causing a cavernous appearance to the sarcoplasm. Subsarcolemmal cisternae and spherical microparticles were found near the sarcolemma. The basal lamina of myocytes was thick (about 0.7 mu) and was bound to numerous microfibrils. These microfibrils (170 Angstrom wide) were enmeshed with collagen fibrils from the chorda and appeared to connect muscle and tendon. Myofilaments of the last sarcomeres terminated into subsarcolemmal dense mats at distal or lateral margins of narrowing myocytes. All margins of even the terminal myocytes could be penetrated with lanthanum. In papillary muscle tips the nerve fiber varicosities were filled with small mitochondria, of a type suggesting sensory neuroreceptors. In the MTJ of cat hearts narrowing myocytes terminated with occasional P cells which were not organized into multicellular clusters. In bat hearts the P cells did occasionally cluster in the MTJ, and in attached valve leaflets. P cells in the MTJ suggest possible local automaticity, decrement in conduction velocity of excitation and, perhaps, moderation of the jerk during papillary muscle contraction.
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show files
File 351:DERWENT WPI 1963-2000/UD=, UM=, & UP=200004
         (c) 2000 Derwent Info Ltd
?ds

Set     Items   Description
S1         56   (CHEMICAL (5N) SENSOR? ?) AND ARRAY? ?
S2       5961   MICROSPHERE? ? OR MICROBEAD? ? OR MICROPARTICLE? ?
S3       1507   MICRO()SPHERE? ? OR MICRO()BEAD? ? OR MICRO()PARTICLE? ?
S4     104165   DYE? ?
S5      64330   ENCOD?
S6      85275   BIOACTIVE OR NUCLEIC OR PROTEIN? ?
S7       2307   (FLUORESCEN? OR SOLVATOCHROM?) (3N) DYE??
S8         10   NILE()RED
S9      15203   ((FIBER OR FIBRE) ()OPTIC? ?) OR FIBEROPTIC? ? OR FIBREOPT-
             IC? ?
S10         0   S1 AND (S2 OR S3)
S11         2   S1 AND S4
S12      7735   SENSOR? ? AND ARRAY? ?
S13         5   S12 AND (S2 OR S3)
S14        50   S12 AND S4
S15         4   S14 AND (S6-S8)
S16         2   S14 AND S5
S17         7   S14 AND S9
S18        15   S10 OR S11 OR S13 OR S15 OR S16 OR S17
S19         2   S12 AND OPTICAL () RESPONSE? ?
S20        15   S18 OR S19
?t 20/7/all

 20/7/1
DIALOG(R)File 351:DERWENT WPI
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012866690
WPI Acc No: 00-038523/200003
 Biochemical  sensor
Patent Assignee: IMPERIAL COLLEGE SCI TECHNOLOGY & MED (UNLO  )
Inventor: CASS A E G; DURRANT J R; GILARDI G
Number of Countries: 021  Number of Patents: 001
Patent Family:
Patent No  Kind  Date   Applicat No Kind  Date   Main IPC      Week
WO 9954718  A1 19991028 WO 99GB999   A  19990331 G01N-027/327  200003 B

Priority Applications (No Type Date): GB 988264 A 19980417
Patent Details:
Patent   Kind Lan Pg Filing Notes    Application  Patent
WO 9954718  A1 E  22
   Designated States (National): CA JP US
   Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
   MC NL PT SE

Abstract (Basic): WO 9954718 A1
        NOVELTY - Biochemical device comprises a surface for immobilizing a
    biochemical species. The surface is at least partially covered with a
    nanocrystalline metal oxide semiconductor film. The film provides a
    recipient surface for immobilizing the biochemical species.
        DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a
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method of manufacturing a biochemical device, comprising covering at least a portion of a sensing surface with a film of nanocrystalline semiconductor, contacting the preformed film with a biochemical species such that the biochemical species is immobilized onto the film.

USE - The biochemical device is a reactor used in synthetic, catalytic or biodegradation reactions (all claimed).

pp; 22 DwgNo 0/3

Derwent Class: B04; D16; J04; S03; U12
International Patent Class (Main): G01N-027/327
International Patent Class (Additional): C12Q-001/00; G01N-033/543

20/7/2
DIALOG(R)File 351:DERWENT WPI

012721883
WPI Acc No: 99-527995/199944
New biosensors for detecting responses of cells to analytes, used for drug screening and analyzing biological fluids and for monitoring bioprocesses and environmental pollution.
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: TAYLOR L; WALT D R
Number of Countries: 083 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
WO 9945357	A2	19990910	WO 99US4473	A	19990302	G01N-000/00	199944 B

Priority Applications (No Type Date): US 9833462 A 19980302
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
WO 9945357	A2	E	60			

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

Abstract (Basic): WO 9945357 A2

NOVELTY - A novel biosensor (A) for detecting the response of individual cells to at least one analyte of interest comprises:

(a) a substrate comprising discrete sites; and

(b) cells each dispersed at one of the discrete sites, where each cell is encoded with at least one optically interrogatable material.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) an apparatus for detecting the response of individual cells to at least one analyte of interest comprising:

(a) a biosensor array comprising components as in (A);

(b) a detector optically coupled to and in optical communication with the discrete sites on the substrate, the detector being capable of detecting an optical response of the cells dispersed in the discrete sites to an analyte;

(2) a method for detecting the response of individual cells to at least one analyte of interest comprising:

(a) providing a biosensor array comprising components (a) and (b)

as in (A);
(b) contacting the biosensor array with an analyte of interest; and
(c) detecting an optical response of the cells;
(3) a method of making a biosensor array for detecting the response of individual cells to at least one analyte of interest comprising:
(a) providing a substrate comprising discrete sites; and
(b) contacting the substrate with cells such that each cell is dispersed at one of the discrete sites.
USE - The biosensors can be used for detecting the response of cells to analytes. They can be used for drug screening and analysis of complex biological fluids and for monitoring bioprocesses and environmental pollution.
ADVANTAGE - The system can provide high throughput screening of combinatorial libraries involving thousands of cells within an array . The discriminating capabilities of the biosensor array toward biological or chemical analytes is significantly enhanced by providing for thousands of cell responses from a large number of cell populations. By summing the responses from a number of cells at low analyte concentrations, a substantial improvement in signal-to-noise ratio can be achieved and a corresponding reduction in the detection limit of the biosensor array is obtained. The ability to measure all cell responses simultaneously thus provides for the capability to monitor both short term cell response and long term cell response.
pp; 60 DwgNo 0/11
Derwent Class: B04; D16; J04; S03
International Patent Class (Main): G01N-000/00

20/7/3
DIALOG(R)File 351:DERWENT WPI

012650716 **Image available**
WPI Acc No: 99-456821/199938
Apparatus for determining cardiac output of the cardiovascular system of the body of a patient, gives highly enhanced measurement rapidity without adverse consequences to body hemostasis or stability
Patent Assignee: CARDIOX CORP (CARD-N)
Inventor: EGGERS P E; HUNTLEY S P; KHALIL G E
Number of Countries: 028 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 5928155	A	19990727	US 97792967	A	19970124	A61B-005/028	199938 B
			US 9840167	A	19980317		
EP 943289	A1	19990922	EP 99630023	A	19990312	A61B-005/0275	199943
NO 9901259	A	19990920	NO 991259	A	19990315	G01N-000/00	199949
AU 9920332	A	19990930	AU 9920332	A	19990310	A61B-005/0275	199952

Priority Applications (No Type Date): US 9840167 A 19980317; US 97792967 A 19970124
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
US 5928155	A		52	CIP of	US 97792967	
				CIP of		US 5788647
EP 943289	A1	E				

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): US 5928155 A

NOVELTY - Apparatus for determining cardiac output of the cardiovascular system of the body of a patient.

DETAILED DESCRIPTION - Apparatus comprises (a) catheter with externally disposed proximal end region and oppositely disposed measurement region positionable within the bloodstream of the body; (b) indicator channel within the catheter with a fluid input at the proximal end region connected with a controlled source of analyte-containing fluid, biocompatible with and metabolizable within the body, chosen from ammoniacal fluid, heparin, ethanol, carbon dioxide-releasing fluid, glucose, anesthesia agent, but excluding oxygen, and extending to an infusion outlet at the measurement region from which the analyte-containing fluid may be expressed; and (c) analyte concentration sensor responsive to the analyte with a forward assembly configured for flowing blood contact mounted with the catheter at the measurement region at a location spaced downstream from the infusion outlet when positioned within the bloodstream and having an analyte sensor or concentration sensor output transmissib le to the proximal end region corresponding with a concentration level of the analyte within the bloodstream that is correlatable with the cardiac output. INDEPENDENT CLAIMS are also included for (1) system for determining cardiac output of cardiovascular system of body; (2) method of determining cardiac output of cardiovascular system of body.

USE - Used to determine cardiac output of the cardiovascular system of the body of a patient (claimed).

ADVANTAGE - Capable of carrying out cardiac output measurements with highly enhanced measurement rapidity without adverse consequences to body hemostasis or stability. Enhance cardiac output measurements are achieved by selection of analyte-containing fluid as dilution injectate that is non-thermal, biocompatible and metabolizable within the body of the patient. Accuracy is achieved without call for multiple measurement-averaging regimen. Avoids labor-intensive cardiac output measurement processes, while making a variety of cardiovascular parameters available at a display and in conjunction with recorded media.

DESCRIPTION OF DRAWING(S) - Schematic, partially sectional view of heart showing placement and illustrating use of cardiac output-measuring catheter.

pulmonary artery catheter (60)
distal end or tip and measurement region (62)
partially inflated balloon (64)
outer tip (66)
analyte -containing fluid injectate or infusion port (70)
measurement region (72)
pp; 52 DwgNo 1/35

Derwent Class: B04; J04; P31; P34; S03; S05
International Patent Class (Main): A61B-005/0275; A61B-005/028; G01N-000/00
International Patent Class (Additional): A61B-005/029

20/7/4
DIALOG(R)File 351:DERWENT WPI

012579556 **Image available**
WPI Acc No: 99-385663/199932
Device for detecting presence of antigen using emitter molecule and optical detector to detect photon
Patent Assignee: MASSACHUSETTS INST TECHNOLOGY (MASI)
Inventor: RIDER T H; SMITH L
Number of Countries: 020 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
WO 9930156	A1	19990617	WO 98US25539	A	19981202	G01N-033/53	199932 B

Priority Applications (No Type Date): US 98169196 A 19981009; US 97987410 A 19971209
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
WO 9930156	A1	E	25			

Designated States (National): CA JP
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Abstract (Basic): WO 9930156 A1

NOVELTY - Antigen detection device comprises a cell having antibodies which bind to antigen, resulting in an increase in calcium concentration in the cytosol of the cell and containing an emitter molecule which in response to the increased calcium concentration, emits a photon.

DETAILED DESCRIPTION - Device for detecting the presence of an antigen comprises a cell having antibodies which are expressed on the surface of the cell and are specific for the antigen to be detected. The binding of the antigen to the antibodies results in an increase in calcium concentration in the cytosol of the cell which also contains an emitter molecule which in response to the increased calcium concentration, emits a photon. A liquid medium in which the cell is immersed, receives the antigen to be detected and an optical detector receives the photon emitted from the cell.

An INDEPENDENT CLAIM is included for a device for detecting the presence of at least two antigens which comprises:

(1) an array containing several sectors each containing a cell having antibodies which are expressed on the surface of the cell and an emitter molecule;

(2) liquid media in which the cell of each sector is immersed and

(3) an optical detector for receiving the photon emitted from each cell. Each sector contains a cell having antibodies specific to a different antigen.

Each sector contains a cell having antibodies specific to a different antigen.

USE - The device is useful for detecting the presence of antigens especially for the detection of biological and/or chemical weapons, rapid detection of antibiotic resistant bacteria in a patient to enable selection of a more effective therapeutic regimen, continuous monitoring of city drinking water supply to detect potential pathogens and as a detector for meat and/or poultry.

ADVANTAGE - The device is small, fast and sensitive for detecting antigens.

DESCRIPTION OF DRAWING(S) - The drawing illustrates the optoelectric sensor .

Housing Opening (2)

Optical Detector (4)
Antigen Permeable Mesh (6)
pp; 25 DwgNo 1/3
Derwent Class: B04; J04; K02; S03
International Patent Class (Main): G01N-033/53

20/7/5
DIALOG(R)File 351:DERWENT WPI

012471200
WPI Acc No: 99-277308/199923
Chemical analytical system using self- encoding microspheres
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: DICKINSON T A; WALT D R
Number of Countries: 083 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
WO 9918434	A1	19990415	WO 98US21193	A	19981006	G01N-033/50	199923 B
AU 9912695	A	19990427	AU 9912695	A	19981006	G01N-033/50	199936

Priority Applications (No Type Date): US 97944850 A 19971006
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
WO 9918434	A1	E	82			
AU 9912695	A			Based on	WO 9918434	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

Abstract (Basic): WO 9918434 A1

NOVELTY - A self-encoding sensor array has a substrate with a surface having discrete sites. Microspheres are distributed on the surface. The microspheres form two subpopulations, each having at least one reporter dye . Each subpopulation emits a first characteristic optical response signature when subjected to excitation light in the presence of a reference analyte.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS relate to a method for reducing the signal-to noise ratio in the characteristic optical response signature, and for amplifying the characteristic signature, of a sensor array having a subpopulation of array elements by decoding the array to identify the location of each sensor element. The characteristic response signature of each sensor element is measured and the baseline of the signature for each sensor element adjusted. The characteristic optical response signature of each sensor subpopulation is reported as a summation of the baseline-adjusted characteristic optical response signatures of all sensor elements in each of the subpopulations.

Preferred Features: Each subpopulation may further include a bioactive agent, e.g. nucleic acids or proteins , or a chemical functional group which modifies the characteristic optical response of the bead subpopulation. The reporter dye may be a fluorescent or solvatochromic dye . The beads are preferably encoded with a

predetermined ratio of at least two reporter dyes . The substrate may be the proximal or distal end of a fibre optic bundle where there may be etched microwells larger than the bead diameters and in which individual beads are located. The bead matrix material may be an organic polymer or copolymer, or an inorganic material, e.g. porous silicas, aluminas or zeolites. An excitation light source and a detector are in optical communication with the fibre bundle.

USE - For the detection of gaseous and liquid analytes, e.g. organic and inorganic molecules. This includes the monitoring of environmental pollution, chemicals, therapeutic molecules, biomolecules, cellular membrane antigens and receptors, whole cells, viruses and spores. It is especially suited for nucleic acid and protein analysis, the screening of water and food samples for toxic bacteria, and DNA fingerprinting to match crime-scene DNA against samples taken from victims and suspects.

ADVANTAGE - A single sensor array may carry thousands of discrete sensing elements whose combined signal provides substantial improvements in sensor detection limits, response times and signal-to-noise ratios.

pp; 82 DwgNo 0/20

Derwent Class: B04; S03
International Patent Class (Main): G01N-033/50
International Patent Class (Additional): G01N-021/62; G01N-021/64; G01N-021/77

20/7/6
DIALOG(R)File 351:DERWENT WPI

010859238 **Image available**
WPI Acc No: 96-356189/199636
Electronically controlled micropipette dispensing precision picolitre droplets - includes micro-ejection pump with micro-engineered chamber with elastic wall
Patent Assignee: FORSCHUNGSZENTRUM ROSSENDORF EV (ROSS-N); BUERGER M (BUER-I); HOWITZ S (HOWI-I); WEGENER T (WEGE-I)
Inventor: BUERGER M; HOWITZ S; WEGENER T
Number of Countries: 013 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
EP 725267	A2	19960807	EP 96101332	A	19960131	G01N-001/00	199636 B
WO 9624040	A2	19960808	WO 96DE139	A	19960131	G01N-001/00	199637
EP 725267	A3	19960918	EP 96101332	A	19960131	G01N-001/00	199645
WO 9624040	A3	19960926	WO 96DE139	A	19960131	G01N-001/00	199645
EP 725267	B1	19981118	EP 96101332	A	19960131	G01N-001/00	199850
DE 59600820	G	19981224	DE 500820	A	19960131	G01N-001/00	199906
			EP 96101332	A	19960131		

Priority Applications (No Type Date): DE 1003141 A 19950201
Cited Patents: No-SR.Pub; 2.Jnl.Ref; DE 3531241; EP 545284; GB 2211111; WO 9405414
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
EP 725267	A2	G	10			
Designated States (Regional): AT BE CH DE DK FR GB IT LI NL SE						
WO 9624040	A2	G	15			

Designated States (National): JP US
EP 725267 B1 G
Designated States (Regional): AT BE CH DE DK FR GB IT LI NL SE
DE 59600820 G Based on EP 725267

Abstract (Basic): EP 725267 A

Electrically controlled micro-pipette handles fluids with or without microparticle content, in volumes between a few hundred pico litres and several micro litres. The arrangement includes microejection pump with microengineered chamber (7). Its elastic wall (14) is controlled by an electrical actuator (12) forming a micromembrane pump. Its pipette tip has a microdischarge capillary (4). It is initially filled with a fluid which is inert under the conditions of use. Fluids are taken in spontaneously or under pump suction. Droplets are delivered in constant size and known number, the rate of delivery controlled by electrical signal frequency. Further micropumps may be added for precision adjustment and washing purposes. A metallised tip forms an electrical immersion sensor , used in extraction.

USE - As an electrically controlled micropipette to manage fluid volumes from a few hundred pl to several mul.

ADVANTAGE - The unit is extremely compact and may be mass produced. It handles minute volumes of fluid, including suspended matter, with minimal dead volume and small media consumption. There are no complex mechanical valves to fail. It is easily implemented in a multichannel or array dispenser. It may be made from individual chips, or built compactly into a single silicon chip. Any number of outlets is feasible with individual or group control. Compared with mechanical devices, extremely high reliability is to be expected.

Dwg.2/5

Derwent Class: J04; S03
International Patent Class (Main): G01N-001/00
International Patent Class (Additional): B01L-003/02

20/7/7
DIALOG(R)File 351:DERWENT WPI

010732920 **Image available**
WPI Acc No: 96-229875/199623
Optical sensor for detecting chemical analyte, etc. in fluid sample, using spectral pattern recognition techniques - detects and evaluates optical data generated by array of thin film semi-selective sensing receptors each with different chemical formulations and spectral characteristics
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: KAUER J S; WALT D R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 5512490	A	19960430	US 94289001	A	19940811	G01N-021/77	199623 B

Priority Applications (No Type Date): US 94289001 A 19940811
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
US 5512490	A		42			

Abstract (Basic): US 5512490 A

The optical sensor comprises a support part, and an optic array formed of multiple semi-selective sensing receptor units which differ in their constituent chemical formulations, differ in their spectral characteristics, and are immobilised at different spatial positions on the support part for reactive contact with the fluid sample. Each sensing unit reacts concurrently and semi-selectively but spectrally differently with an individual analyte of interest.

Each sensing unit incorporates a polymeric substance of predetermined chemical composition, and a semi-selective dye compound of predetermined chemical composition which has characteristic spectral properties, is disposed in admixture with the polymeric substance, and can react semi-selectively and spectrally differently over time with more than one analyte. The sensing receptor units are able to detect a variety of different analytes and ligands using spectral recognition patterns.

ADVANTAGE - Optically based, thus does not rely on changes in electrical signals. Sensor is semi-selective in terms of binding and reaction characteristics, such that single sensor dye reagent produces differing responses to multiple analytes in accurate and reproducible manner.

Dwg.0/0

Derwent Class: A89; E19; H04; J04; S03
International Patent Class (Main): G01N-021/77

20/7/8
DIALOG(R)File 351:DERWENT WPI

009923756 **Image available**
WPI Acc No: 94-191467/199423

Fibre- optic array for detection of multiple analytes of interest concurrently - provides viewing zone for visual examination of sample and surrounding environment and performs qualitative and quantitive optical measurements

Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: BARNARD S M; WALT D R
Number of Countries: 020 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 5320814	A	19940614	US 91645787	A	19910125	G01N-021/00	199423 B
			US 92981884	A	19921125		
WO 9412863	A1	19940609	WO 93US11039	A	19931115	G01N-021/00	199424
EP 627074	A1	19941207	WO 93US11039	A	19931115	G01N-021/00	199502
			EP 94902248	A	19931115		
JP 7509784	W	19951026	WO 93US11039	A	19931115	G01N-021/78	199551
			JP 94513204	A	19931115		
EP 627074	A4	19970806	EP 94902248	A	19940000	G01N-021/00	199813

Priority Applications (No Type Date): US 92981884 A 19921125; US 91645787 A 19910125
Cited Patents: EP 336985; US 4523092; US 4582809; US 4785814; US 4822746; US 4999306; US 5019350; US 5047627; US 5166990; US 5244636; US 5244813; EP 280397
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent

US 5320814 A 43 CIP of US 91645787
CIP of US 5244636
WO 9412863 A1 E 80
Designated States (National): CA JP
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
EP 627074 A1 E 2 Based on WO 9412863
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
JP 7509784 W 25 Based on WO 9412863

Abstract (Basic): US 5320814 A
The detector provides a unique fibre optic sensor which is able to provide a viewing zone for visual examination of a sample and its surrounding environment. Multiple assays are concurrently conducted using multiple different dyes immobilized at individual spatial positions within a dye sensing zone on the surface of the sensor .
The sensor has at least two different energy absorbing dyes disposed individually at different spatial positions on discrete optic array surfaces. Methods of detection for multiple analytes of interest which can be correlated with specific parameters or other ligands for specific applications and purposes.
USE/ADVANTAGE - For detecting at least one analyte of interest in fluid sample. Detection of each analyte is correlatable with individual optical determination.
Dwg.4/30
Derwent Class: B04; D16; J04; P31; P81; S03; V07
International Patent Class (Main): G01N-021/00; G01N-021/78
International Patent Class (Additional): A61B-005/00; G01N-021/64; G01N-021/80; G01N-033/533; G02B-006/24

20/7/9
DIALOG(R)File 351:DERWENT WPI

009820604 **Image available**
WPI Acc No: 94-100460/199412
Thin film fibre- optic sensor array for concurrent viewing and chemical sensing of sample - has gradient index lens joined to and optically aligned with one end of array, and thin film of different energy-absorbing dyes on end, with each dye reacting with particular ligand
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: BRONK K S; WALT D R
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
US 5298741 A 19940329 US 934695 A 19930113 G01N-021/00 199412 B

Priority Applications (No Type Date): US 934695 A 19930113
Patent Details:
Patent Kind Lan Pg Filing Notes Application Patent
US 5298741 A 23

ct (Basic): US 5298741 A
A preformed, unitary fibre =optic array includes a number of

individually clad, fibre optical strands disposed coaxially along their lengths and having two discrete optic array ends. A uniform and uninterrupted thin film is provided having at least one light energy absorbing dye .

The film is positioned over one of the array end surfaces, and has a thickness ranging from about 1-50 microns. Each dye reacts with a ligand of interest in a manner correlatable with an optical determination. A gradient index lens is joined to and optically aligned with one end of the array .

Dwg.9/18

Derwent Class: P31; P81; S03
International Patent Class (Main): G01N-021/00
International Patent Class (Additional): A61B-005/00; G02B-006/24

20/7/10
DIALOG(R)File 351:DERWENT WPI

009634471 **Image available**
WPI Acc No: 93-328020/199341
Fibre optic sensor for concurrently detecting analytes in fluid - comprising clad fibre optic array having energy-absorbing dyes strategically located on end surface
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: BARNARD S M; WALT D R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 5250264	A	19931005	US 91645787	A	19910125	G01N-021/00	199341 B
			US 92994552	A	19921221		

Priority Applications (No Type Date): US 91645787 A 19910125; US 92994552 A 19921221
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
US 5250264	A		35	Cont of	US 91645787	

Abstract (Basic): US 5250264 A

Fibre optic sensor , able to detect at least one analyte in fluid sample, is made using preformed, unitary, fibre optic array (100) of individually clad, fibre optic strands (102) in co-axial alignment having two discrete optic array ends (110,112) each formed of multiple strand end faces presenting two discrete surfaces for introducing and conveying light energy. One of the optic array surfaces is placed in contact with a photopolymerizable dye mixture preparation comprising a light energy absorbing dye and a monomer mixture polymerizable by light energy and light energy is introduced to first and second portions of the other surface and conveyed through first and second groups of fibre optical strands respectively to first and second spatial positions on the surface contacting the polymerizable dye mixture to cause photopolymerization of the mixture as first and second uninterrupted deposits of dye , the dye deposits ing with analytes of interest in a fluid sample.

USE/ADVANTAGE - Fibre optic sensor is used for the detection ltiple analytes of interest in a fluid sample concurrently. Using energy absorbing dyes disposed individually at different

spatial positions, on its end surface, it enables the measurement of different parameters such as pH, oxygen, carbon dioxide, etc. using a single discrete sensor . It is suitable for in vivo catheterization for assay purposes with minimum discomfort and maximum accuracy.

ic

Dwg.6/26

Derwent Class: B04; J04; P31; P81; S03; V07
International Patent Class (Main): G01N-021/00
International Patent Class (Additional): A61B-005/00; G02B-006/24

20/7/11
DIALOG(R)File 351:DERWENT WPI

009609044 **Image available**
WPI Acc No: 93-302592/199338
Fibre- optic array sensor for analysis of fluid sample - has single fibre- optic array of individually clad strands, with light absorbing dyes deposited on end faces at different spatial positions
Patent Assignee: TUFTS COLLEGE (TUFT)
Inventor: BARNARD S M; WALT D R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 5244636	A	19930914	US 91645787	A	19910125	G01N-021/00	199338 B

Priority Applications (No Type Date): US 91645787 A 19910125
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
US 5244636	A		37			

Abstract (Basic): US 5244636 A

The fibre optic sensor includes a preformed, unitary fibre optic array of individually clad, fibre optical strands arranged co-axially along their lengths. The array has two discrete optic array ends presenting two discrete optic array surfaces for introduction and conveyance of light energy.

At least one light energy absorbing dye is deposited in alignment on the multiple strand end faces at different spatial positions on one of the discrete optic array surfaces of the array . The different spatial positioning of each uninterrupted deposit serves to identify and distinguish each light energy absorbing dye from all other light energy absorbing dyes . Each spatially positioned dye reacts specifically with one analyte of interest.

USE/ADVANTAGE - E.g. for pH measurement. Single imaging sensor detects multiple analytes concurrently.

Dwg.6/26

Derwent Class: P31; P81; S02; S03; S05; V07
International Patent Class (Main): G01N-021/00
International Patent Class (Additional): A61B-005/00; G02B-006/24

20/7/12
DIALOG(R)File 351:DERWENT WPI

009554053 **Image available**
WPI Acc No: 93-247600/199331
Ultrasonic probe for ultrasound medical diagnostic imaging equipment - has element segments in matrix sensor array filled with material containing microbeads NoAbstract
Patent Assignee: ALOCA CO LTD (ALOC)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
JP 5168637	A	19930702	JP 91343532	A	19911225	A61B-008/12	199331 B

Priority Applications (No Type Date): JP 91343532 A 19911225
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
JP 5168637	A		9			

Abstract (Basic): JP 5168637 A
Dwg.1/7
Derwent Class: P31; S03; S05; V06
International Patent Class (Main): A61B-008/12
International Patent Class (Additional): G01N-029/24; H04R-017/00

20/7/13
DIALOG(R)File 351:DERWENT WPI

008383747
WPI Acc No: 90-270748/199036
Micro lens, for facsimile, etc. - is mfd. by moulding compsn. of silica microparticles and organic silane cpd. etc.
Patent Assignee: EPSON CORP (SHIH)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
JP 2189501	A	19900725	JP 8910418	A	19890119		199036 B

Priority Applications (No Type Date): JP 8910418 A 19890119

Abstract (Basic): JP 2189501 A
Micro lens is produced by moulding compsn. of silica micro particles and organic silane cpd. Micro lens array has above micro lenses regularly arranged.
USE/ADVANTAGE - By using the compsn. of silica micro particles and silane coupling agent, micro lens with good thermal stability and weather resistance can be easily produced. Different from lens made of general resin material, micro lens produced is constituted by inorganic component (silica), it shows good thermal stability. Micro lens can be produced at relatively low temp. (130-170 deg.C), in addn. to glass, plastic and other resin materials can be used as lens constituting substrate, and lens body can be directly formed on optical member which is already made. Useful for facsimile, electronic copying machine, image sensor or plane display (liq. crystal display), etc.. (4pp Dwg.No.0/2)
Derwent Class: L03; P81; S06; U14; V07; W02
International Patent Class (Additional): G02B-003/00; G02B-006/18

20/7/14
DIALOG(R)File 351:DERWENT WPI

007796147
WPI Acc No: 89-061259/198908
Receptor membrane for bio- sensors - comprising a closely packed array of self-assembling amphiphilic molecules having ion channels and/or receptor molecules
Patent Assignee: COMMONWEALTH SCI & IND RES ORG (CSIR); AUSTRALIA MEMBRANE & BIOTECHNOLOGY RES INST (AUME-N); AUSTRALIAN MEMBRANE & BIOTECHNOLOGY INST (AUME-N)
Inventor: BRAACH-MAKSVYTIS V L B; CORNELL B A; BRAACH-MAKSVYTIS V L; BRAACHMAKS V L B; BRAACH-MAKSVYTIS V
Number of Countries: 015 Number of Patents: 013
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
WO 8901159	A	19890209	WO 88AU273	A	19880727		198908 B
AU 8821279	A	19890301					198923
EP 382736	A	19900822	EP 88907164	A	19880727		199034
JP 3503209	W	19910718	JP 88506329	A	19880727		199135
EP 382736	B1	19941102	EP 88907164	A	19880727	G01N-033/545	199442
			WO 88AU273	A	19880727		
DE 3852036	G	19941208	DE 3852036	A	19880727	G01N-033/545	199503
			EP 88907164	A	19880727		
			WO 88AU273	A	19880727		
EP 382736	A4	19901205	EP 88907164	A	19880000		199514
CA 1335879	C	19950613	CA 573217	A	19880727	G01N-033/545	199531
US 5436170	A	19950725	WO 88AU273	A	19880727	G01N-033/543	199535
			US 90473932	A	19900125		
JP 2682859	B2	19971126	JP 88506329	A	19880727	G01N-033/566	199801
			WO 88AU273	A	19880727		
US 5693477	A	19971202	US 90473932	A	19900125	G01N-033/53	199803
			US 95447569	A	19950523		
US 5741712	A	19980421	US 90473932	A	19900125	G01N-033/53	199823
			US 95448178	A	19950523		
US 5766960	A	19980616	US 90473932	A	19900125	G01N-033/53	199831
			US 95449895	A	19950523		

Priority Applications (No Type Date): AU 874478 A 19870921; AU 873346 A 19870727; AU 873348 A 19870727; AU 8821279 A 19870728; AU 873453 A 19870731
Cited Patents: AU 8431989; AU 8540123; US 4444878; US 4517303; EP 261887; EP 59393; US 4661442
Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
WO 8901159	A	E	40			
Designated States (National): AU JP US						
Designated States (Regional): AT BE CH DE FR GB IT LI LU NL SE						
EP 382736	A					
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EP 382736	B1	E	24	Based on		WO 8901159
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DE 3852036	G			Based on		EP 382736
				Based on		WO 8901159
US 5436170	A		15	Based on		WO 8901159

JP 2682859	B2	14	Previous Publ.		JP 3503209
			Based on		WO 8901159
US 5693477	A	13	Cont of	US 90473932	
			Cont of		US 5436170
US 5741712	A	13	Div ex	US 90473932	
			Div ex		US 5436170
US 5766960	A		CIP of	US 90473932	
			CIP of		US 5436170

Abstract (Basic): WO 8901159 A

A membrane comprising a closely packed array of self-assembling amphiphilic molecules is claimed characterised in that (1) the membrane includes ion channels selected from peptides capable of forming helices and aggregates, podands, coronands, cryptands and combinations and/or (2) at least a proportion of the self-assembling amphiphilic molecules comprise a receptor molecule conjugated with a supporting entity, the receptor molecule having a receptor site and being selected from immunoglobulins, antibodies, antibody fragments, dyes , enzymes and lectins, the supporting entity being selected from a lipid head gp., a hydrocarbon chain, a cross-linkable molecule and a membrane protein , the supporting entity being conjugated with the receptor molecule at an end remote from the receptor site.

Pref. the ion channels are gramicidin or analogues. Also claimed is a biosensor comprising a membrane bilayer attached to a solid surface, the bilayer having an upper and lower layer, the lower layer being adjacent the solid surface and being provided with gps. reactive with the solid surface or with gps. provided on this, each layer of the bilayer being composed of self-assembling amphiphilic molecules and gramicidin monomers, and where a receptor moiety is attached to the gramicidin monomers in the upper layer. The solid surface is pref. a palladium-coated glass electrode.

USE/ADVANTAGE - The membranes are used partic. for the prodn. of biosensors. They have a high density of receptor sites and serve as highly selective binding surfaces to which molecular species to be detected will bind.

Dwg.0/6

Abstract (Equivalent): EP 382736 B

A membrane bound to a solid non-porous surface, the membrane comprising a closely packed array of self-assembling amphiphillic molecules and characterised in that:

(1) the membrane includes a plurality of ion channels which are peptides capable of forming helices and aggregates thereof, a podand, coronand, cryptand or a combination thereof; and

(2) at least a proportion of the self-assembling amphiphillic molecules comprise a receptor molecule conjugated with a supporting entity, the receptor molecule having a receptor site and being an immunoglobulin, antibody, antibody fragment, dye , enzyme or lectin;

the supporting entity being a lipid head group, a hydrocarbon chain(s), a cross-linkable molecule or a membrane protein and being conjugated with the receptor molecule at an end remote from the receptor site.

Dwg.0/6

Abstract (Equivalent): US 5693477 A

A membrane comprising a closely packed array of self-assembling amphiphilic molecules is claimed characterised in that (1) the membrane includes ion channels selected from peptides capable of forming helices and aggregates, podands, coronands, cryptands and combinations and/or

(2) at least a proportion of the self-assembling amphiphilic molecules comprise a receptor molecule conjugated with a supporting entity, the receptor molecule having a receptor site and being selected from immunoglobulins, antibodies, antibody fragments, dyes , enzymes and lectins, the supporting entity being selected from a lipid head gp., a hydrocarbon chain, a cross-linkable molecule and a membrane protein , the supporting entity being conjugated with the receptor molecule at an end remote from the receptor site.

Pref. the ion channels are gramicidin or analogues. Also claimed is a biosensor comprising a membrane bilayer attached to a solid surface, the bilayer having an upper and lower layer, the lower layer being adjacent the solid surface and being provided with gps. reactive with the solid surface or with gps. provided on this, each layer of the bilayer being composed of self-assembling amphiphilic molecules and gramicidin monomers, and where a receptor moiety is attached to the gramicidin monomers in the upper layer. The solid surface is pref. a palladium-coated glass electrode.

USE/ADVANTAGE - The membranes are used partic. for the prodn. of biosensors. They have a high density of receptor sites and serve as highly selective binding surfaces to which molecular species to be detected will bind.

Dwg.3/6

US 5436170 A

Membrane comprises a closely packed array of self-assembling amphiphilic molecules, e.g. peptides that form helices and/or aggregates, such that numerous ion channels are present in the structure and at least part of the structure comprises a receptor (e.g. immunoglobulin, antibody or its active binding fragment, enzyme or lectin) conjugated with a hydrocarbon chain or membrane protein at a location remote from the receptor's active site.

USE - The prods. are components of selective biosensors.

ADVANTAGE - The membrane is mounted on a solid supporting surface to provide robustness and avoid fragility.

Dwg.0/6

Derwent Class: B04; D16; S03
International Patent Class (Main): G01N-033/53; G01N-033/543; G01N-033/545; G01N-033/566
International Patent Class (Additional): C07K-017/08; C12N-011/08; G01N-027/327; G01N-033/54; G01N-033/547; G01N-033/549; G01N-033/563

20/7/15
DIALOG(R)File 351:DERWENT WPI

002321196
WPI Acc No: 80-C7629C/198012
Automatic deployment of horizontal linear sensor array - involves hanging string of sensors from float which gradually sinks to lower array to sea bed
Patent Assignee: BUNKER RAMO CORP (BUKR)
Inventor: BENNETT D J; HOGAN D J
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 4193057	A	19800311					198012 B

Priority Applications (No Type Date): US 78888165 A 19780320

Abstract (Basic): US 4193057 A

A linear sensor array is deployed horizontally on the ocean floor by first deploying a vertical array , between an anchor and a float from which the array is suspendend. The buoyancy of the float is then gradually decreased as the float is carried away from the anchor by ocean currents.

The float is comprised of a suitably large volume of buoyant material such as hollow glass microspheres freely floating inside a liquid filled plastic container. To gradually reduce buoyancy, the microspheres are allowed to flow out through a neck near the top of the container while water is allowed to enter the bottom of the container through a liquid permeable membrane. The diameter of the neck is selected for optimum sinking rate of the float.

Derwent Class: V06; W04

International Patent Class (Additional): H04R-001/46

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